

PCT

INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY
(Chapter II of the Patent Cooperation Treaty)

(PCT Article 36 and Rule 70)

Translation



Applicant's or agent's file reference YCT-761	FOR FURTHER ACTION See Form PCT/IPEA/416	
International application No. PCT/JP2003/002343	International filing date (day/month/year) 28 February 2003 (28.02.2003)	Priority date (day/month/year) 16 October 2002 (16.10.2002)
International Patent Classification (IPC) or national classification and IPC C08L 79/08, C08G 73/22, 73/10		
Applicant PI R & D CO., LTD.		

- This report is the international preliminary examination report, established by this International Preliminary Examining Authority under Article 35 and transmitted to the applicant according to Article 36.
- This REPORT consists of a total of 3 sheets, including this cover sheet.
- This report is also accompanied by ANNEXES, comprising:
 - ☒ (sent to the applicant and to the International Bureau) a total of 5 sheets, as follows:
 - ☒ sheets of the description, claims and/or drawings which have been amended and are the basis of this report and/or sheets containing rectifications authorized by this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions).
 - ☐ sheets which supersede earlier sheets, but which this Authority considers contain an amendment that goes beyond the disclosure in the international application as filed, as indicated in item 4 of Box No. I and the Supplemental Box.
 - ☐ (sent to the International Bureau only) a total of (indicate type and number of electronic carrier(s)) _____, containing a sequence listing and/or tables related thereto, in computer readable form only, as indicated in the Supplemental Box Relating to Sequence Listing (see Section 802 of the Administrative Instructions).
- This report contains indications relating to the following items:
 - ☒ Box No. I Basis of the report
 - ☐ Box No. II Priority
 - ☐ Box No. III Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
 - ☐ Box No. IV Lack of unity of invention
 - ☒ Box No. V Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
 - ☐ Box No. VI Certain documents cited
 - ☐ Box No. VII Certain defects in the international application
 - ☐ Box No. VIII Certain observations on the international application

Date of submission of the demand 17 May 2004 (17.05.2004)	Date of completion of this report 06 January 2005 (06.01.2005)
Name and mailing address of the IPEA/JP	Authorized officer
Facsimile No.	Telephone No.

INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY

International application No.

PCT/J1/2003/002343

Box No. I Basis of the report

1. With regard to the language, this report is based on the international application in the language in which it was filed, unless otherwise indicated under this item.

- ☐ This report is based on translations from the original language into the following language _____, which is language of a translation furnished for the purpose of:
- ☐ international search (under Rules 12.3 and 23.1(b))
 - ☐ publication of the international application (under Rule 12.4)
 - ☐ international preliminary examination (under Rules 55.2 and/or 55.3)

2. With regard to the elements of the international application, this report is based on *(replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report)*:

- ☐ The international application as originally filed/furnished
- ☒ the description:
- pages _____ 1-20 _____, as originally filed/furnished
- pages* _____ received by this Authority on _____
- pages* _____ received by this Authority on _____
- ☒ the claims:
- pages _____ 5-10,13,16-23 _____, as originally filed/furnished
- pages* _____, as amended (together with any statement) under Article 19
- pages* 1-4,14-15 received by this Authority on 30 August 2004 (30.08.2004)
- pages* 11-12 received by this Authority on 17 May 2004 (17.05.2004)
- ☐ the drawings:
- pages _____, as originally filed/furnished
- pages* _____ received by this Authority on _____
- pages* _____ received by this Authority on _____
- ☐ a sequence listing and/or any related table(s) – see Supplemental Box Relating to Sequence Listing.

3. ☐ The amendments have resulted in the cancellation of:

- ☐ the description, pages _____
- ☐ the claims, Nos. _____
- ☐ the drawings, sheets/figs _____
- ☐ the sequence listing (*specify*): _____
- ☐ any table(s) related to sequence listing (*specify*): _____

4. ☐ This report has been established as if (some of) the amendments annexed to this report and listed below had not been made, since they have been considered to go beyond the disclosure as filed, as indicated in the Supplemental Box (Rule 70.2(c)).

- ☐ the description, pages _____
- ☐ the claims, Nos. _____
- ☐ the drawings, sheets/figs _____
- ☐ the sequence listing (*specify*): _____
- ☐ any table(s) related to sequence listing (*specify*): _____

* If item 4 applies, some or all of those sheets may be marked "superseded."

Box No. V Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement**1. Statement**

Novelty (N)	Claims	1-23	YES
	Claims		NO
Inventive step (IS)	Claims	1-23	YES
	Claims		NO
Industrial applicability (IA)	Claims	1-23	YES
	Claims		NO

2. Citations and explanations (Rule 70.7)

Document 1: WO, 01-34679, A (PI R&D Co., Ltd.), 17 May, 2001 (17.05.01), page 4, line 7 to page 6, line 8; page 10, line 10 to page 12, line 2, examples, claims

Document 2: JP, 6-172529, A (Mitsubishi Kasei K.K., presently named Mitsubishi Chemical Corp.), 21 June, 1994 (21.06.94), full text

Document 3: US, 5502143, A (PI Material Research Laboratory), 26 March, 1996 (26.03.96), full text

The subject matters of claims 1-23 are neither described in any of the documents cited in the ISR nor obvious to a person skilled in the art.

Documents 1 and 3 respectively describe a method for producing a block copolyimide excellent in solubility in polar solvents, obtained by letting (1) a dianhydride of an acid other than a tetracarboxylic acid and (2) an aromatic diamine react, in the presence of an acid catalyst, with an oligomer obtained as a reaction product using a tetracarboxylic acid and a diamine as ingredients. Furthermore, documents 1 and 3 also describe the constitution, in which the composition having the said block copolyimide dissolved in a polar solvent is used in such applications as electric and electronic materials. Moreover, document 1 describes (1) a block copolyimide solution composition obtained by using an aromatic diamine having a hydroxyl group and amino groups, as another aromatic diamine, and (2) a production method thereof.

However, document 1 neither describes nor suggests the production of an oligomer as a reaction product obtained using a tetracarboxylic acid and a diamine as ingredients, in which pyromellitic acid is used as the tetracarboxylic acid while diaminotoluene is used as the diamine. As described, for example, in document 2, pyromellitic acid is used considering, for example, stiffness and linearity, but in view of, for example, solubility, it is not generally used in a polyimide solution. The invention of the present application employs (1) a combination of it with a specific diamine and (2) a specific production process, for providing a polyimide containing a pyromellitic acid soluble in a polar solvent. So, it is considered that the invention of the present application has a remarkable working effect compared with the prior art.